

## WHAT IS CLAIMED IS:

1. A rework process of patterned photo-resist layer, comprising at least:

providing a substrate with a first dielectric anti-reflective coating  
(DARC), a first primer and a first patterned photo-resist layer being  
5 sequentially formed thereon;  
  
removing the first patterned photo-resist layer and the first primer from  
the first DARC;  
  
forming a second DARC on the first DARC;  
  
forming a second primer on the second DARC; and  
10 forming a second patterned photo-resist layer on the second primer.

2. The rework process according to claim 1, wherein the step of removing  
the first patterned photo-resist layer and the first primer from the first DARC  
further comprises the step of:

using a wet strip method to remove the first patterned photo-resist layer  
15 and the first primer from the first DARC.

3. The rework process according to claim 2, wherein the step of using a wet strip method to remove the first patterned photo-resist layer and the first primer from the first DARC further comprises the steps of:

using an acid agent to remove the first patterned photo-resist layer and  
5 the first primer from the first DARC; and

using an alkaline agent to wash the surface of the first DARC.

4. The rework process according to claim 3, wherein the acid agent comprises HF and H<sub>2</sub>SO<sub>4</sub>.

5. The rework process according to claim 3, wherein the alkaline agent  
10 comprises NH<sub>4</sub>OH, H<sub>2</sub>O<sub>2</sub> and de-ionized water.

6. The rework process according to claim 1, wherein the step of removing the first patterned photo-resist layer and the first primer from the first DARC further comprises the step of:

using a dry strip method to remove the first patterned photo-resist layer  
15 and the first primer from the first DARC.

7. The rework process according to claim 6, wherein the step of using a

dry strip method to remove the first patterned photo-resist layer and the first primer from the first DARC further comprises the steps of:

using oxygen plasma to remove the first patterned photo-resist layer and the first primer from the first DARC.

5 8. The rework process according to claim 1, wherein the first DARC is an SiON layer.

9. The rework process according to claim 8, wherein the second DARC is another SiON layer.

10 10. The rework process according to claim 8, wherein the second DARC is a SiO<sub>2</sub> layer.

11. The rework process according to claim 1, wherein the first DARC comprises:

a SiON layer; and

a SiO<sub>2</sub> layer formed on the SiON layer.

15 12. The rework process according to claim 11, wherein the second DARC is another SiON layer.

13. The rework process according to claim 11, wherein the second DARC is another SiO<sub>2</sub> layer.

14. The rework process according to claim 1, wherein the first primer and the second primer are both made of hexamethyldisilazane (HMDS).

5 15. A reworked semi-conductor rework process of patterned photo-resist layer, comprising at least:

providing a substrate with a first SiON layer, a first SiO<sub>2</sub> layer, a first primer and a first patterned photo-resist layer being sequentially formed thereon;

10 removing the first patterned photo-resist layer and the first primer from the first SiO<sub>2</sub> layer;

forming a second SiO<sub>2</sub> layer or a second SiON layer on the first SiO<sub>2</sub> layer;

forming a second primer on the second SiO<sub>2</sub> layer or the second SiON layer; and

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forming a second patterned photo-resist layer on the second primer.

16. The rework process according to claim 15, wherein the step of removing the first patterned photo-resist layer and the first primer from the first SiO<sub>2</sub> layer further comprises the steps of:

using an acid agent to remove the first patterned photo-resist layer and  
5 the first primer from the first SiO<sub>2</sub> layer; and

using an alkaline agent to wash the surface of the first SiO<sub>2</sub> layer.

17. The rework process according to claim 16, wherein the acid agent comprises HF and H<sub>2</sub>SO<sub>4</sub>.

18. The rework process according to claim 16, wherein the alkaline agent  
10 comprises NH<sub>4</sub>OH, H<sub>2</sub>O<sub>2</sub> and de-ionized water.

19. The rework process according to claim 15, wherein the step of removing the first patterned photo-resist layer and the first primer from the first SiO<sub>2</sub> layer further comprises the steps of:

using oxygen plasma to remove the first patterned photo-resist layer  
15 and the first primer from the first SiO<sub>2</sub> layer.

20. The rework process according to claim 15, wherein the first primer and

the second primer are both made of hexamethyldisilazane (HMDS).

21. A reworked semi-conductor manufacturing process of patterned photo-resist layer, comprising at least:

providing a substrate with a first SiON layer, a first primer and a first  
5 patterned photo-resist layer being sequentially formed thereon;

removing the first patterned photo-resist layer and the first primer  
from the first SiON layer;

forming a second SiON layer or a second SiO<sub>2</sub> layer on the first  
SiON layer;

10 forming a second primer on the second SiON layer or the second  
SiO<sub>2</sub> layer; and

forming a second patterned photo-resist layer on the second primer.

22. The rework process according to claim 21, wherein the step of  
removing the first patterned photo-resist layer and the first primer from the first  
15 SiON layer further comprises the steps of:

using an acid agent to remove the first patterned photo-resist layer and

the first primer from the first SiON layer; and

using an alkaline agent to wash the surface of the first SiON layer.

23. The rework process according to claim 22, wherein the acid agent comprises HF and H<sub>2</sub>SO<sub>4</sub>.

5 24. The rework process according to claim 22, wherein the alkaline agent comprises NH<sub>4</sub>OH, H<sub>2</sub>O<sub>2</sub> and de-ionized water.

25. The rework process according to claim 21, wherein the step of removing the first patterned photo-resist layer and the first primer from the first SiON layer further comprises the steps of:

10 using oxygen plasma to remove the first patterned photo-resist layer and the first primer from the first SiON layer.

26. The rework process according to claim 21, wherein the first primer and the second primer are both made of hexamethyldisilazane (HMDS).

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